**Part-B**

1)create table branch(BRID NUMBER(5) primary key,BRNAME varchar(20) not null,HOD varchar(10));

2)create table student(USN varchar2(15) PRIMARY KEY ,NAME varchar2(10) not null,address varchar2(15),BRID NUMBER(5) references branch,sem varchar2(10));

3) create table author(AID varchar2(15) primary key,ANAME varchar2(15) not null,COUNTRY varchar2(15), AGE number(4));

4) create table book (BKID varchar2(15) primary key,BKNAME VARCHAR2(15) not null, AID varchar2(15) references author,publisher varchar2(15) not null,BRID NUMBER(5) references branch);

5) create table borrow (USN varchar2(15) references student ,BKID varchar2(15) references book,borrow\_date date,primary key(USN,BKID));

**BRANCH INSERTION**

INSERT INTO branch (BRID, BRNAME, HOD)VALUES (10,'MCA','sonu');

INSERT INTO branch (BRID, BRNAME, HOD)VALUES (20,'MBA','sindhu');

INSERT INTO branch (BRID, BRNAME, HOD)VALUES (30,'BBA','shalu');

INSERT INTO branch (BRID, BRNAME, HOD)VALUES (40,'BCA','revathi');

INSERT INTO branch (BRID, BRNAME, HOD)VALUES (50,'BCOM','ROOPA');

**STUDENT INSERTION**

INSERT INTO student (USN, NAME, ADDRESS, BRID, SEM)VALUES ('U1','Anura','jayanager',10,'2 sem');

INSERT INTO student (USN, NAME, ADDRESS, BRID, SEM)VALUES ('U2','AManula','nes',10,'2 sem');

INSERT INTO student (USN, NAME, ADDRESS, BRID, SEM)VALUES ('U3','abi','JP nager',30,'2 sem');

INSERT INTO student (USN, NAME, ADDRESS, BRID, SEM)VALUES ('U4','deepti','nnes',30,'4 sem');

INSERT INTO student (USN, NAME, ADDRESS, BRID, SEM)VALUES ('U5','deepa','js nager',50,'2 sem');

**AUTHOR INSERTION**

INSERT INTO author (AID, ANAME, COUNTRY, AGE)VALUES ('A1', 'arun', 'india', 58);

INSERT INTO author (AID, ANAME, COUNTRY, AGE)VALUES ('A2', 'suma', 'india', 48);

INSERT INTO author (AID, ANAME, COUNTRY, AGE)VALUES ('A3', 'sange', 'india', 38);

INSERT INTO author (AID, ANAME, COUNTRY, AGE)VALUES ('A4', 'geetha', 'india', 28);

INSERT INTO author (AID, ANAME, COUNTRY, AGE)VALUES ('A5', 'dilip', 'india', 30);

**BOOK INSERTION**

INSERT INTO book (BKID, BKNAME, AID, PUBLISHER, BRID)VALUES ('B1', 'DBMS', 'A1', 'SKYWARD', 10);

INSERT INTO book (BKID, BKNAME, AID, PUBLISHER, BRID)VALUES ('B2', 'DBMS', 'A2', 'SKYWARD', 10);

INSERT INTO book (BKID, BKNAME, AID, PUBLISHER, BRID)VALUES ('B3', 'se', 'A3', 'oxford', 20);

INSERT INTO book (BKID, BKNAME, AID, PUBLISHER, BRID)VALUES ('B4', 'java', 'A4', 'shree', 30);

INSERT INTO book (BKID, BKNAME, AID, PUBLISHER, BRID)VALUES ('B5', 'os', 'A1', 'shree', 30);

**BORROW INSEERTION**

INSERT INTO borrow (USN, BKID, BORROW\_DATE)VALUES ('U1', 'B1', '20-MAY-22');

INSERT INTO borrow (USN, BKID, BORROW\_DATE)VALUES ('U1', 'B2', '26-JUN-22');

INSERT INTO borrow (USN, BKID, BORROW\_DATE)VALUES ('U4', 'B3', '23-JUL-22');

INSERT INTO borrow (USN, BKID, BORROW\_DATE)VALUES ('U3', 'B1', '23-JUL-22');

INSERT INTO borrow (USN, BKID, BORROW\_DATE)VALUES ('U2', 'B4', '19-AUG-22');

**Step 3:**

**Updating records**

update book set publisher='skyward' where bkid='B1';

SQL> select \* from book;

**Step 4:**

**Deleting record**

delete borrow where bkid='B1';

2 rows deleted.

SQL> select \* from borrow;

**Step 5:Savingcommit**

INSERT INTO branch (BRID, BRNAME, HOD)VALUES (60,'MCA','BALAJI');

1 row created

COMMIT;

Commit complete.

SQL> SELECT \* FROM BRANCH;

**Step 6:UNDOING(ROLL BACK)**

SAVEPOINT S1;

Savepoint created.

SQL> INSERT INTO branch (BRID, BRNAME, HOD)VALUES (80,'MATHS','VEENA');

1 row created.

SQL> ROLL BACK S1;

Rollback complete.

SQL> SELECT \* FROM BRANCH;

**2)PROGRAM**

**a) List the details of Students studying in the 2nd sem MCA.**

SELECT \*

FROM student

WHERE SEM = '2 SEM' AND BRID = 20;

**b) List the students who have not borrowed any books.**

SELECT s.USN, s.NAME

FROM student s

LEFT JOIN borrow b ON s.USN = b.USN

WHERE b.BKID IS NULL;

3) **a) Display the USN, Student name, Branch name, Book name, Author name, Borrowed Date of 2nd sem MCA students who borrowed books.**

SELECT S.USN, S.NAME, S.SEM, BR.BRNAME, BK.BKNAME, A.ANAME, B.BORROW\_DATE

FROM STUDENT S, BRANCH BR, BOOK BK, AUTHOR A, BORROW B

WHERE S.BRID = BR.BRID

AND S.BRID = BK.BRID

AND BK.AID = A.AID

AND B.USN = S.USN

AND BK.BKID = B.BKID

AND S.SEM = '2 SEM'

AND BR.BRNAME = 'MCA';

no rows selected

**b) List the students who have not borrowed any books.**

SELECT \*

FROM student

WHERE USN NOT IN (SELECT USN FROM borrow);

4) . **a) Display the student details who borrowed more than two books.**

SELECT S.NAME

FROM STUDENT S, BORROW B

WHERE S.USN = B.USN

GROUP BY S.NAME

HAVING COUNT(DISTINCT B.BKID) > 2;

**B) b) Display the student details who borrowed books from more than one Author.**

SELECT S.NAME

FROM STUDENT S

JOIN BORROW B ON S.USN = B.USN

GROUP BY S.NAME

HAVING COUNT(DISTINCT B.BKID) > 2;

**5) a) Display the Book names in descending order of their names**.

SELECT BKNAME

FROM book

ORDER BY BKNAME DESC;

**b) List the details of students who borrowed books which are published by the same publisher.**

SELECT s.USN, s.NAME, s.ADDRESS, s.BRID, s.SEM

2 FROM student s

3 JOIN borrow br ON s.USN = br.USN

4 JOIN book bk ON br.BKID = bk.BKID

5 GROUP BY s.USN, s.NAME, s.ADDRESS, s.BRID, s.SEM

6 HAVING COUNT(DISTINCT bk.PUBLISHER) = 1;

**6)** **CREATE TABLE STUDENTSS (USN VARCHAR2(10) PRIMARY KEY, NAME VARCHAR2(20) NOT NULL, DOB DATE, BRANCH VARCHAR2(10) NOT NULL, MARK1 NUMBER(4) NOT NULL, MARK2 NUMBER(4) NOT NULL, MARK3 NUMBER(4) NOT NULL,TOTAL NUMBER(4), GPA NUMBER(4,2));**

**CREATE TABLE NEWSTUDENT (**

**USN VARCHAR2(10) PRIMARY KEY,**

**NAME VARCHAR2(20) NOT NULL,**

**DOB DATE,**

**BRANCH VARCHAR2(10) NOT NULL,**

**MARK1 NUMBER(4) NOT NULL,**

**MARK2 NUMBER(4) NOT NULL,**

**MARK3 NUMBER(4) NOT NULL,**

**TOTAL NUMBER(4),**

**GPA NUMBER(4,2)**

**);**

**INSERTION**

**INSERT INTO NEWSTUDENT (USN, NAME, DOB, BRANCH, MARK1, MARK2, MARK3, TOTAL, GPA)**

**2 VALUES ('1BI21CS001', 'John Doe', TO\_DATE('2000-03-15', 'YYYY-MM-DD'), 'CSE', 85, 90, 88, 263, 8.77);**

**1 row created.**

**SQL> INSERT INTO NEWSTUDENT (USN, NAME, DOB, BRANCH, MARK1, MARK2, MARK3, TOTAL, GPA) VALUES ('1BI21CS003', 'Alice Brown', TO\_DATE('2000-12-05', 'YYYY-MM-DD'), 'CSE', 92, 95, 90, 277, 9.23);**

**1 row created.**

**SQL> INSERT INTO NEWSTUDENT (USN, NAME, DOB, BRANCH, MARK1, MARK2, MARK3, TOTAL, GPA) VALUES ('1BI21CS004', 'Bob White', TO\_DATE('1999-08-10', 'YYYY-MM-DD'), 'CSE', 75, 80, 78, 233, 7.77);**

**1 row created.**

**SQL> INSERT INTO NEWSTUDENT (USN, NAME, DOB, BRANCH, MARK1, MARK2, MARK3, TOTAL, GPA) VALUES ('1BI21CS005', 'Charlie Green', TO\_DATE('2000-11-30', 'YYYY-MM-DD'), 'CSE', 88, 85, 87, 260, 8.67);**

**1 row created.**

**SQL> INSERT INTO NEWSTUDENT (USN, NAME, DOB, BRANCH, MARK1, MARK2, MARK3, TOTAL, GPA) VALUES ('1BI21CS006', 'David Lee', TO\_DATE('2000-01-10', 'YYYY-MM-DD'), 'CSE', 90, 91, 89, 270, 9.00);**

**1 row created.**

INSERT INTO NEWSTUDENT (USN, NAME, DOB, BRANCH, MARK1, MARK2, MARK3, TOTAL, GPA) VALUES ('1BI21CS007', 'Samuel King', TO\_DATE('2000-07-12', 'YYYY-MM-DD'), 'CSE', 88, 90, 85, 263, 8.77);

**7)** a) **Find the GPA score of all students:**

SELECT USN, NAME,

(MARK1 + MARK2 + MARK3) / 30 AS GPA

FROM NEWSTUDENT;